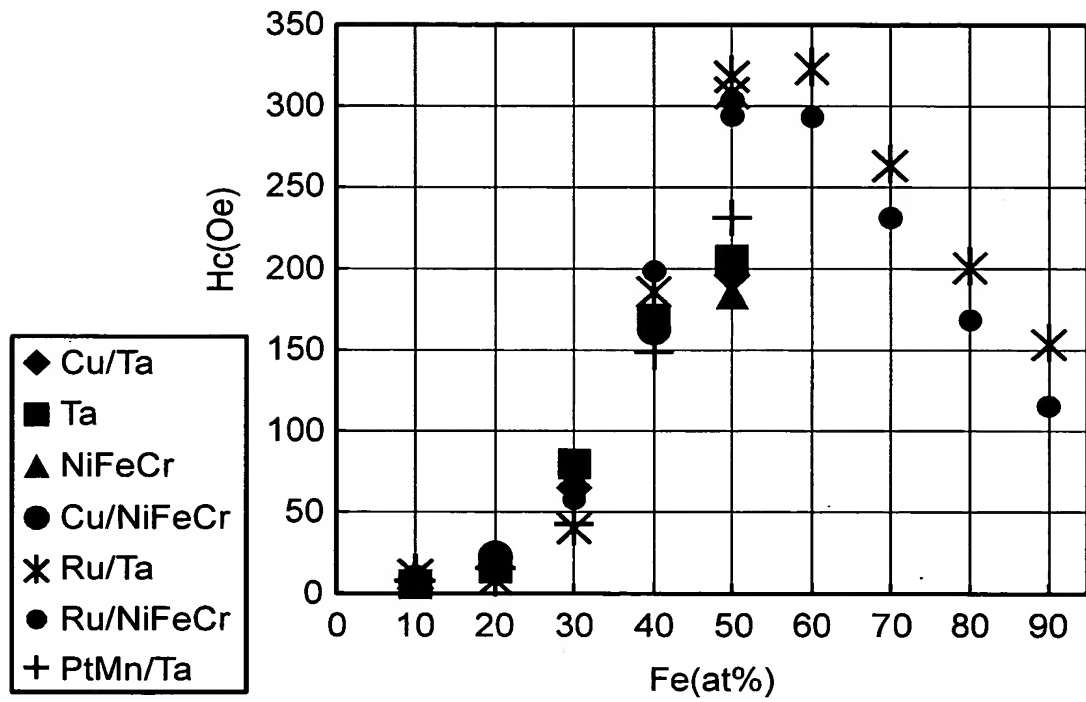
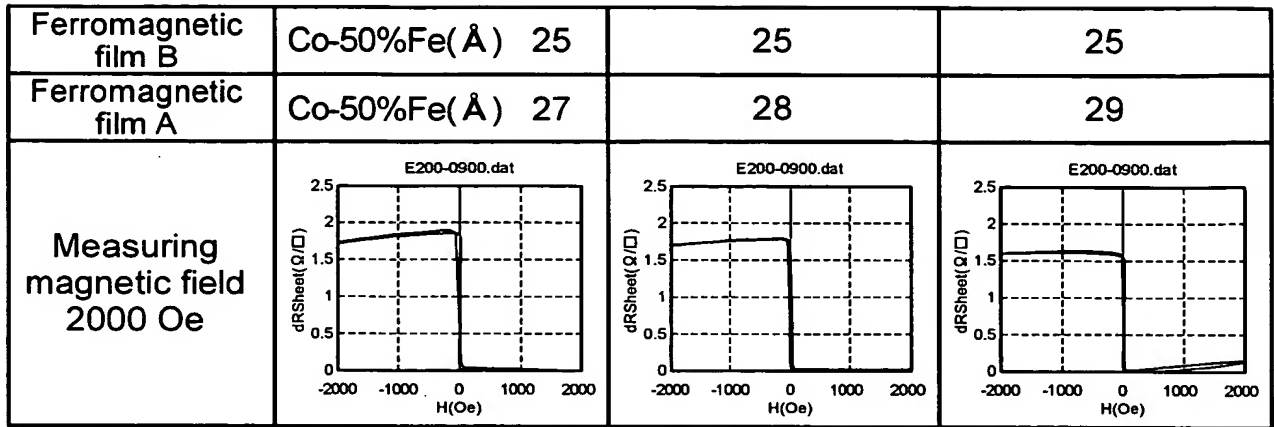


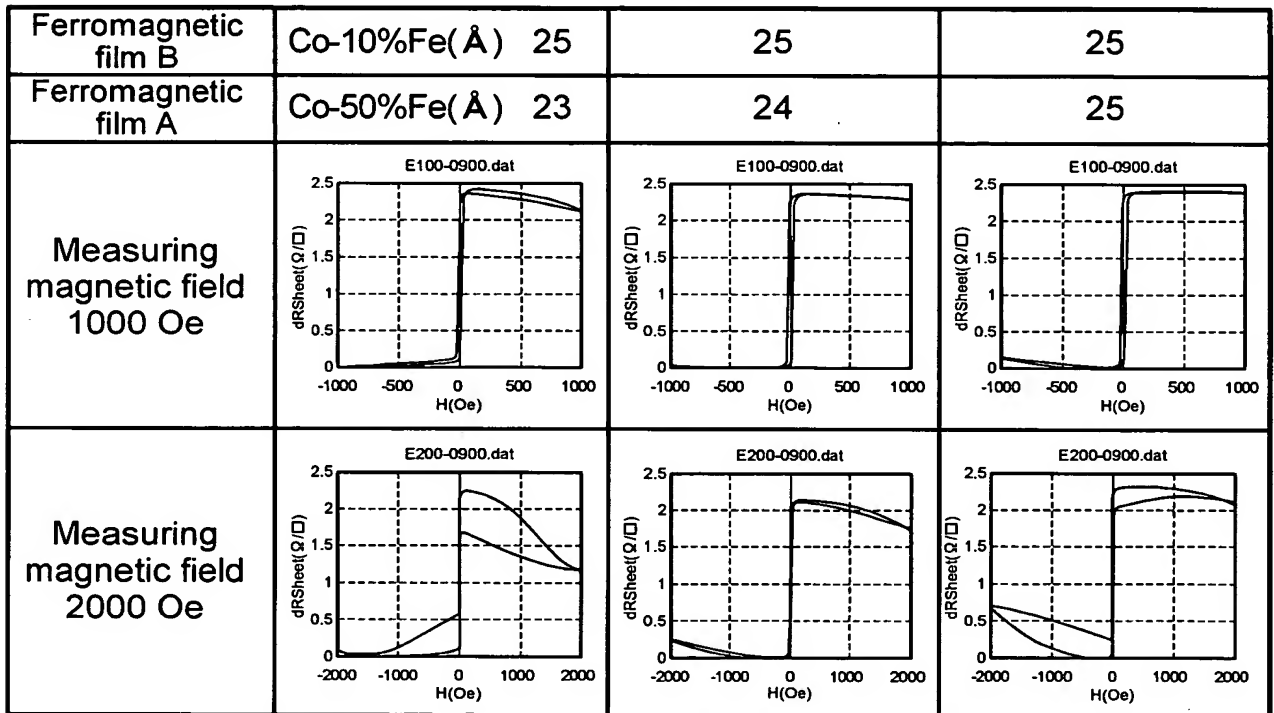
**FIG.1**



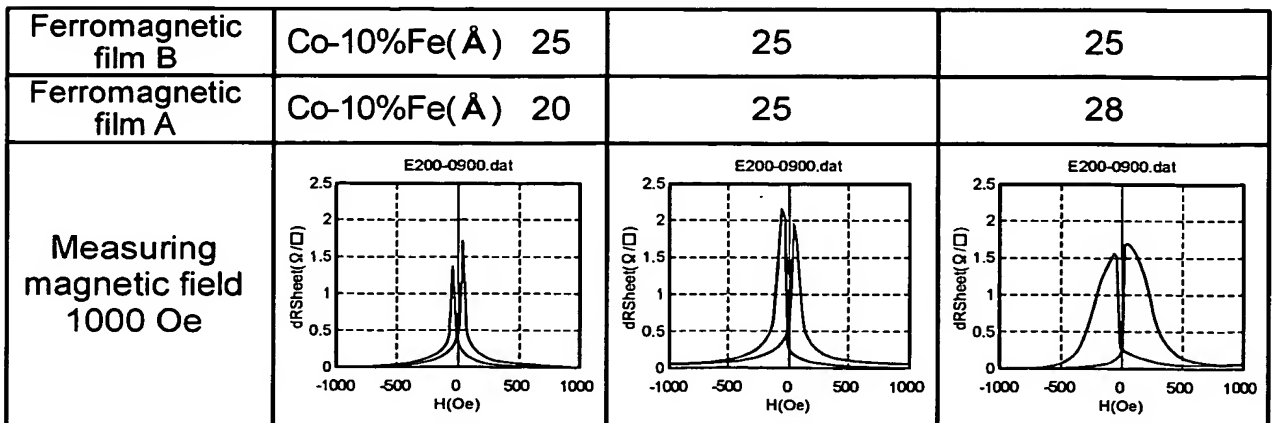
**FIG.2(a)**



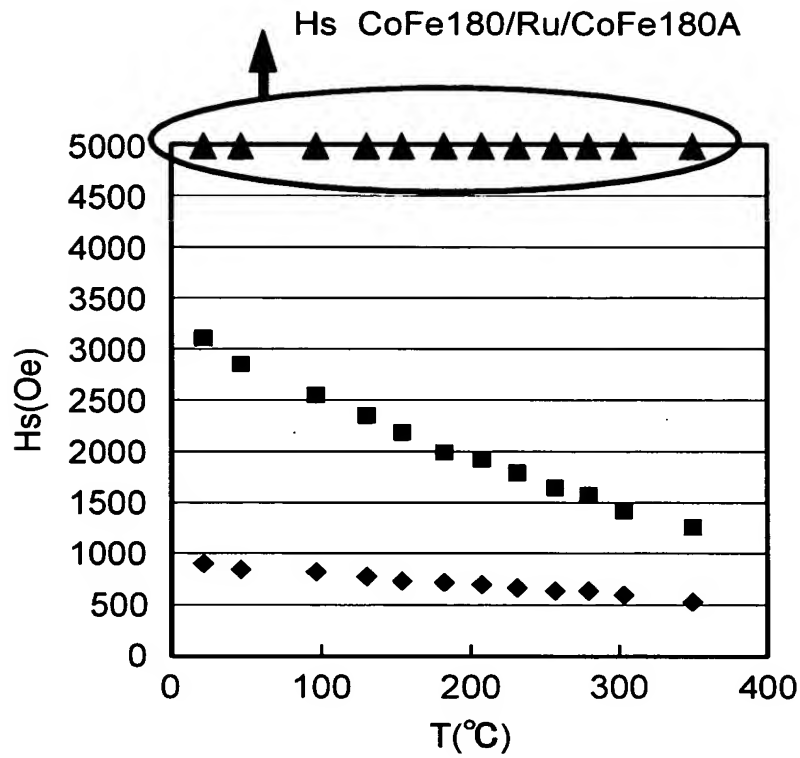
**FIG.2(b)**



**FIG.2(c)**



**FIG.3(a)**



**FIG.3(b)**

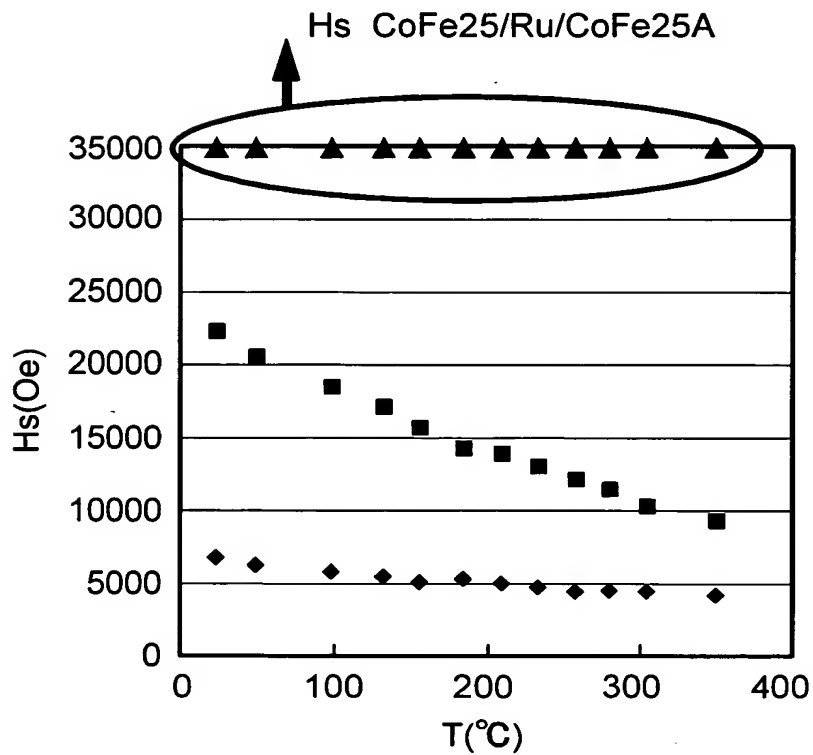
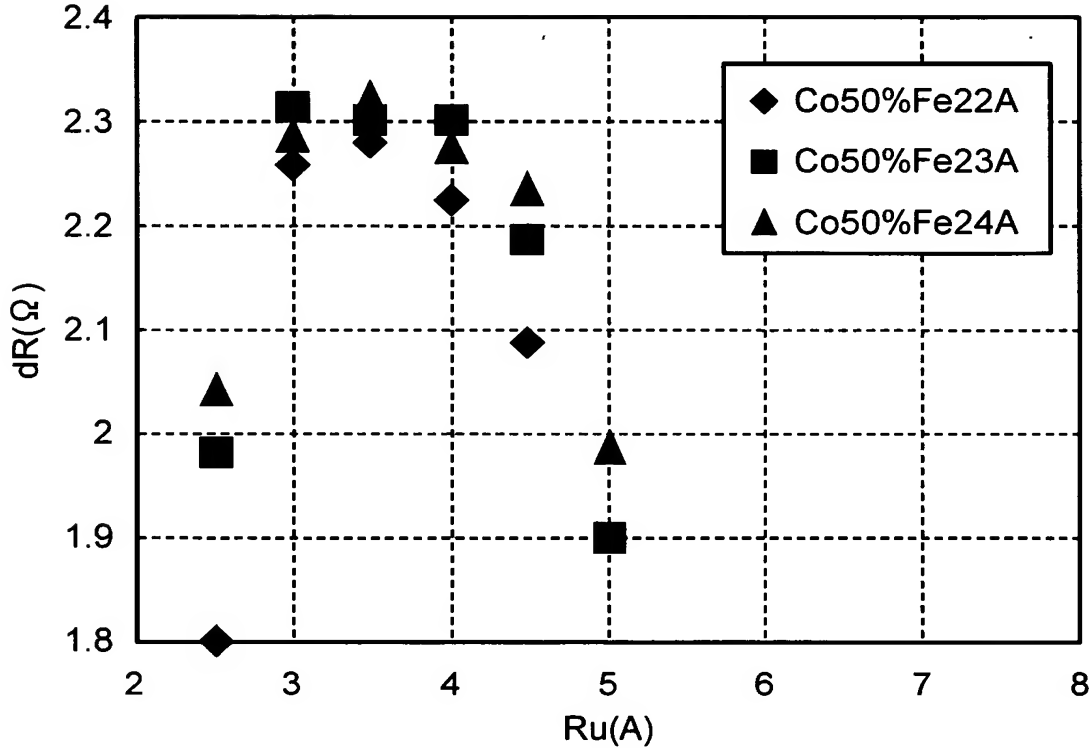
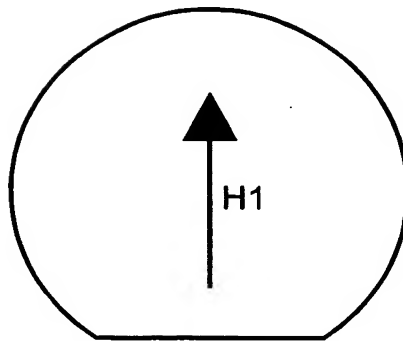


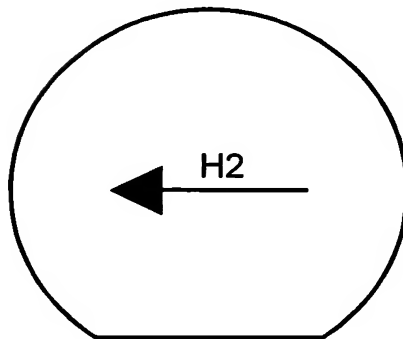
FIG.4



**FIG.5**



First step



Second step

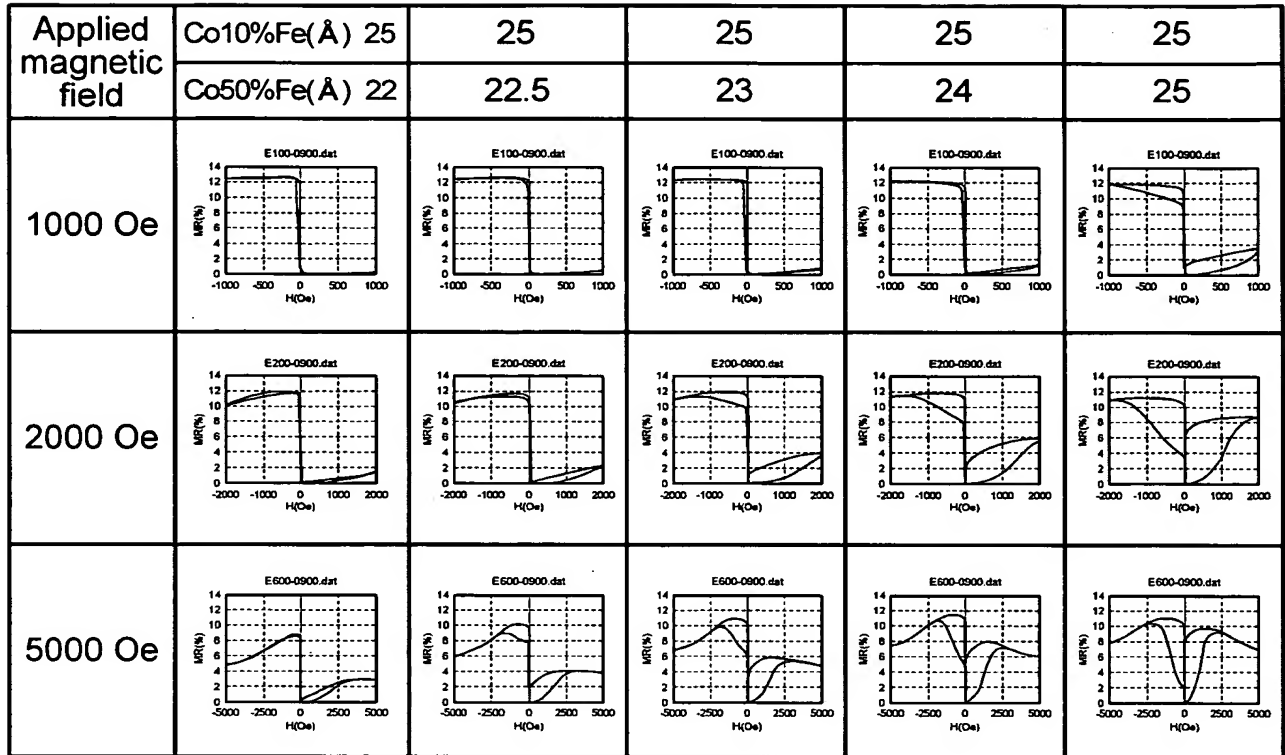
**FIG.6(a)**

| Ferromagnetic<br>film A (Å)<br>Ru (Å)                            | 22.0 | 22.5 | 23.0 | 23.5 | 24.0 | 24.5 | 25.0 | 25.5 | 26.0 | high<br>↑<br>Stability<br>↓<br>low |
|--|------|------|------|------|------|------|------|------|------|------------------------------------|
| 3  | x    | x    | x    | x    | x    | o    | o    | x    | x    |                                    |
| 3.5  | x    | x    | x    | x    | x    | o    | o    | x    | x    |                                    |
| 3.8  | x    | x    | x    | x    | o    | o    | o    | x    | x    |                                    |
| 4  | x    | x    | o    | o    | o    | o    | o    | x    | x    |                                    |
| 4.2  | x    | x    | o    | o    | o    | x    | x    | x    | x    |                                    |
| 4.5  | x    | x    | o    | o    | x    | x    | x    | x    | x    |                                    |
| high ←                      Stability                      → low |      |      |      |      |      |      |      |      |      |                                    |

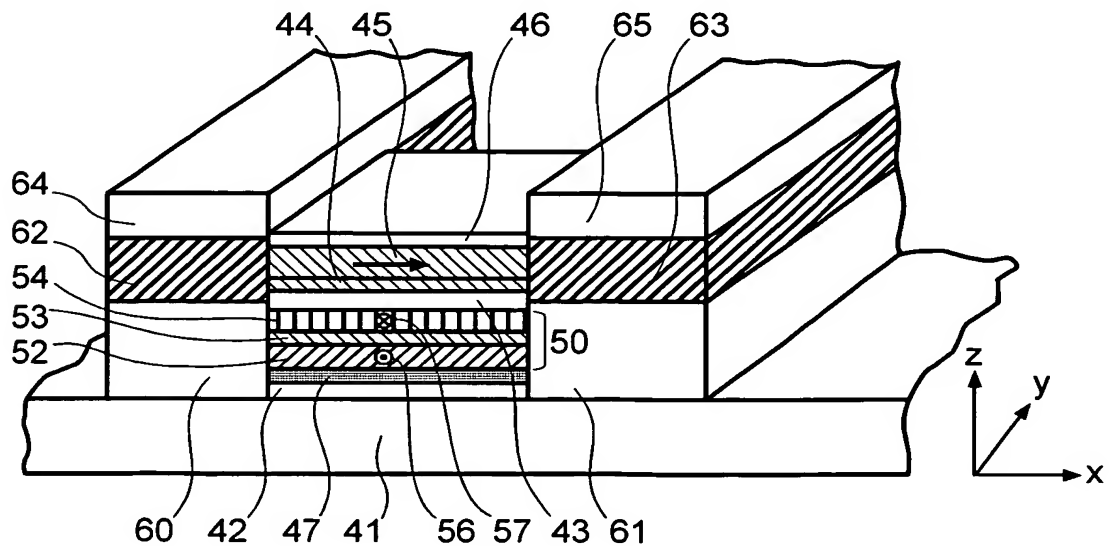
**FIG. 6(b)**

| Ferromagnetic film A (Å)<br>Ru (Å)   | 22.0 | 22.5 | 23.0 | 23.5 | 24.0 | 24.5 | 25.0 | 25.5 | 26.0 | <div> <div>high</div> <div>↑</div> <div>Stability</div> <div>↓</div> <div>low</div> </div> |
|--|------|------|------|------|------|------|------|------|------|--|
| 3  | ×    | ○    | ○    | ○    | ○    | ○    | ○    | ×    | ×    |  |
| 3.5  | ×    | ○    | ○    | ○    | ○    | ○    | ○    | ×    | ×    |  |
| 3.8  | ×    | ○    | ○    | ○    | ○    | ○    | ○    | ×    | ×    |  |
| 4  | ×    | ○    | ○    | ○    | ○    | ○    | ○    | ×    | ×    |  |
| 4.2  | ×    | ○    | ○    | ○    | ○    | ×    | ×    | ×    | ×    |  |
| 4.5  | ×    | ○    | ○    | ○    | ×    | ×    | ×    | ×    | ×    |  |
| <div> <div>high</div> <div>←</div> <div>Stability</div> <div>→</div> <div>low</div> </div> |      |      |      |      |      |      |      |      |      |  |

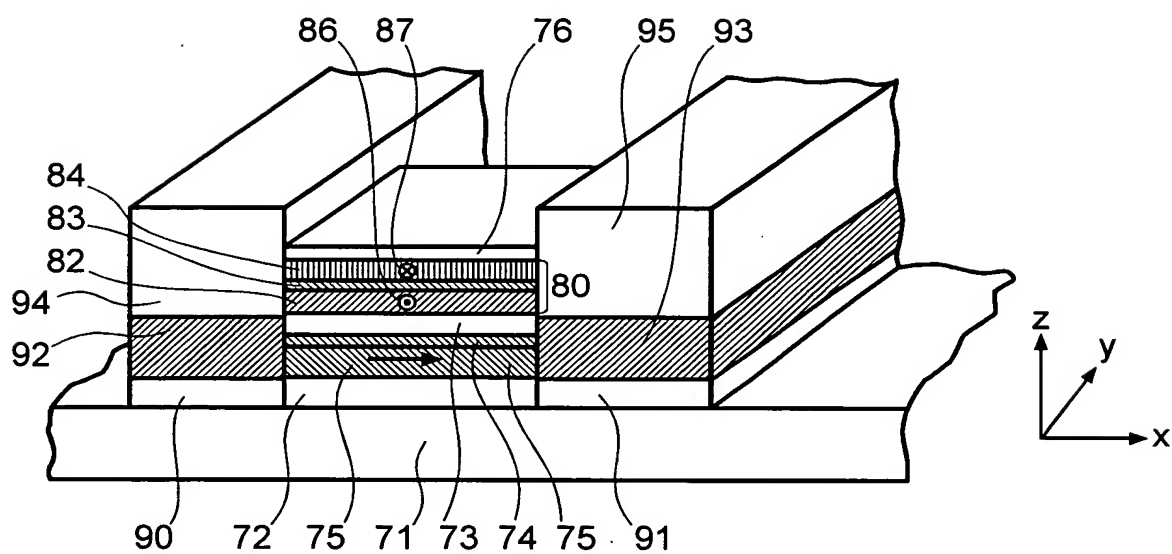
**FIG.7**



**FIG.8**

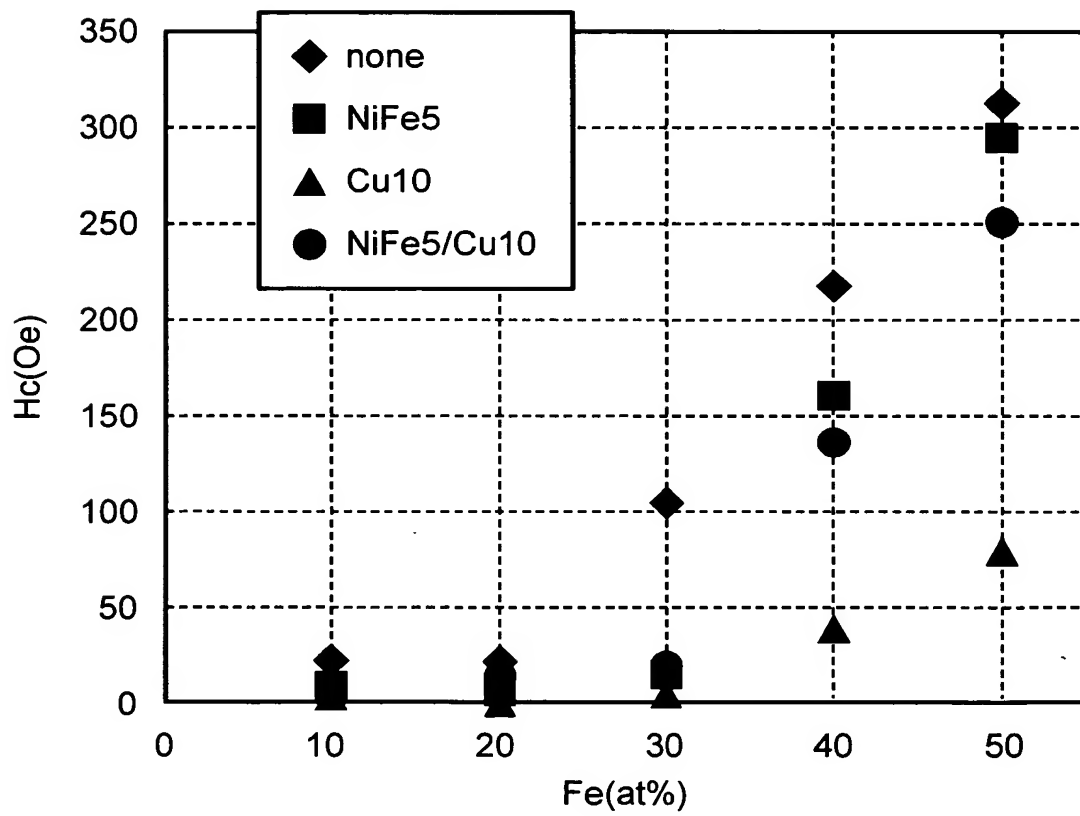


**FIG.9**

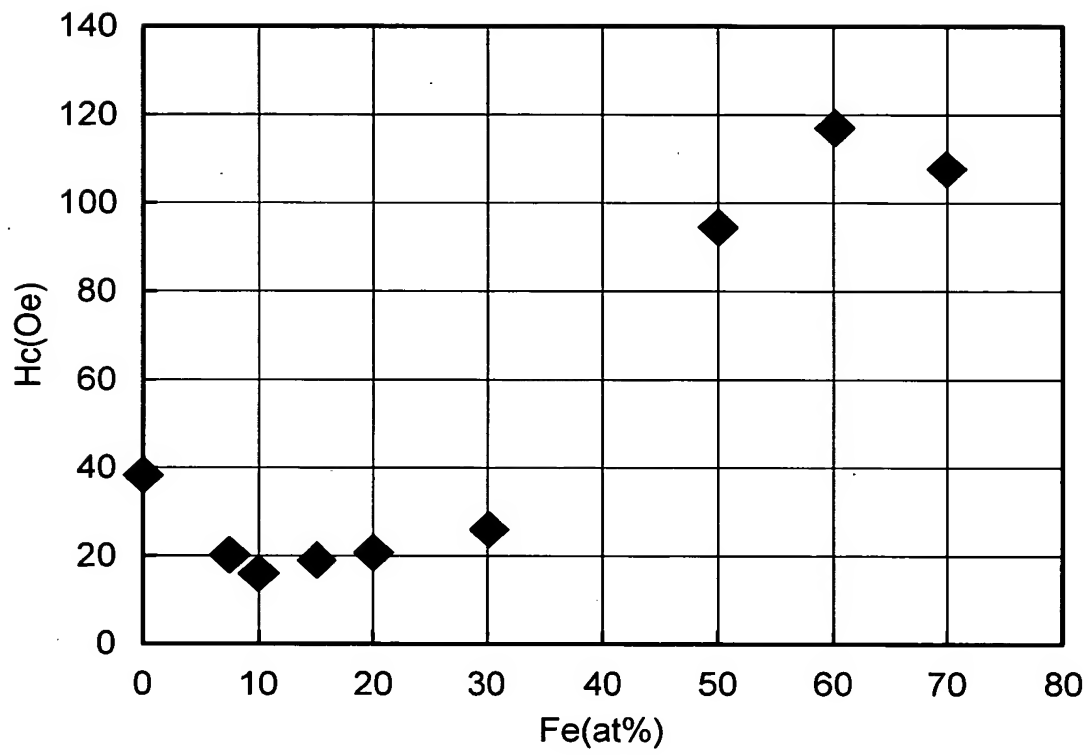




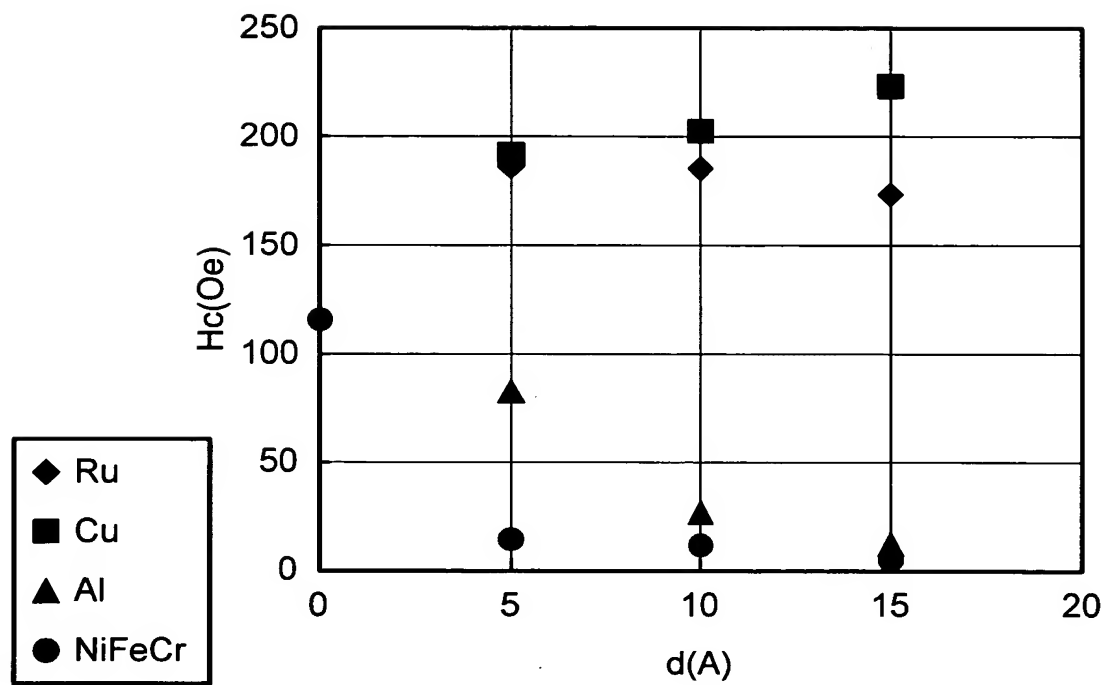
**FIG.10**



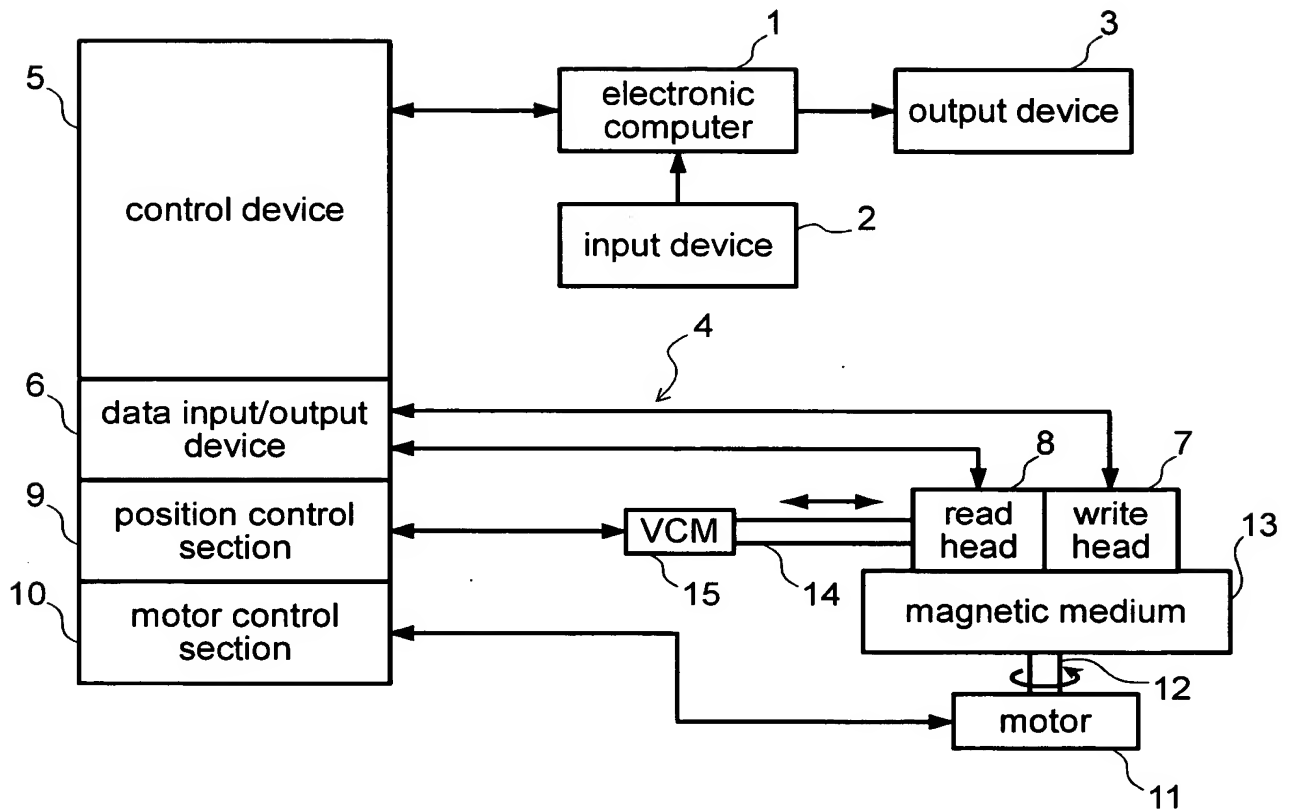
**FIG.11**



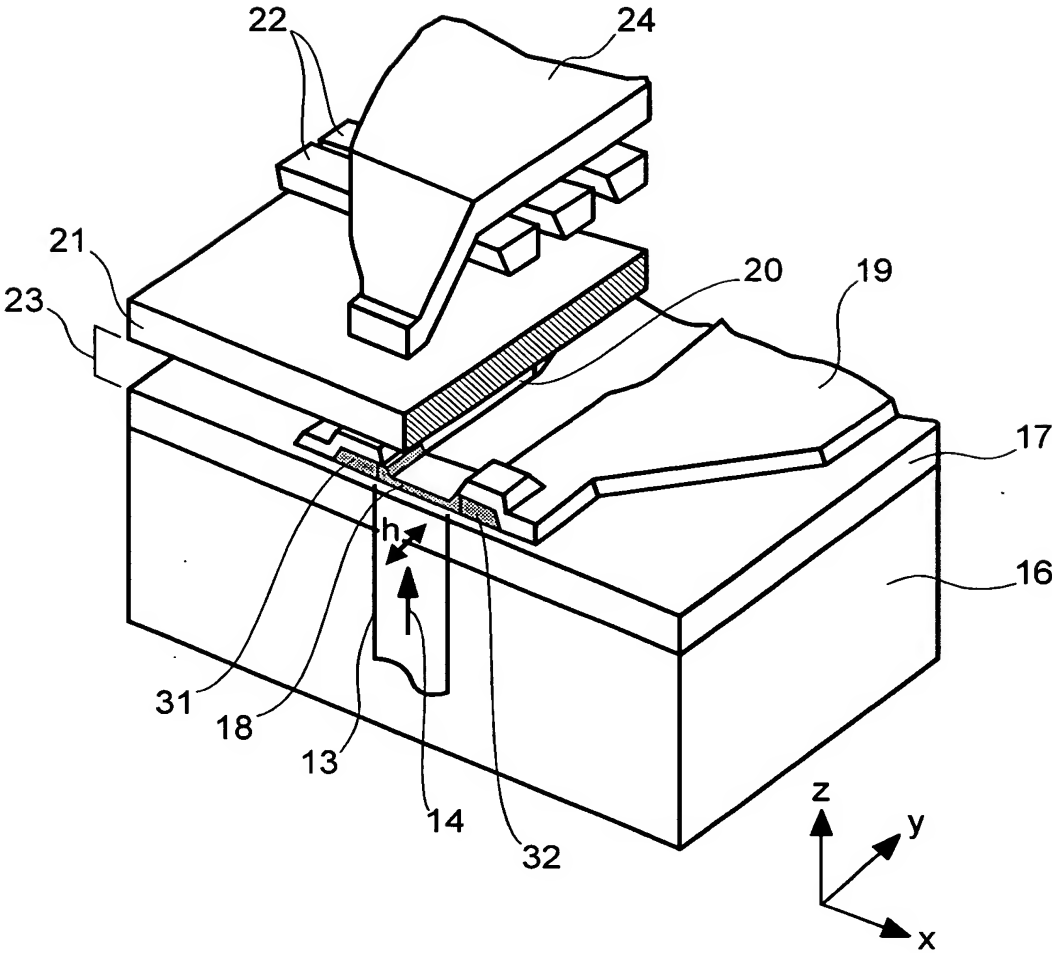
**FIG.12**



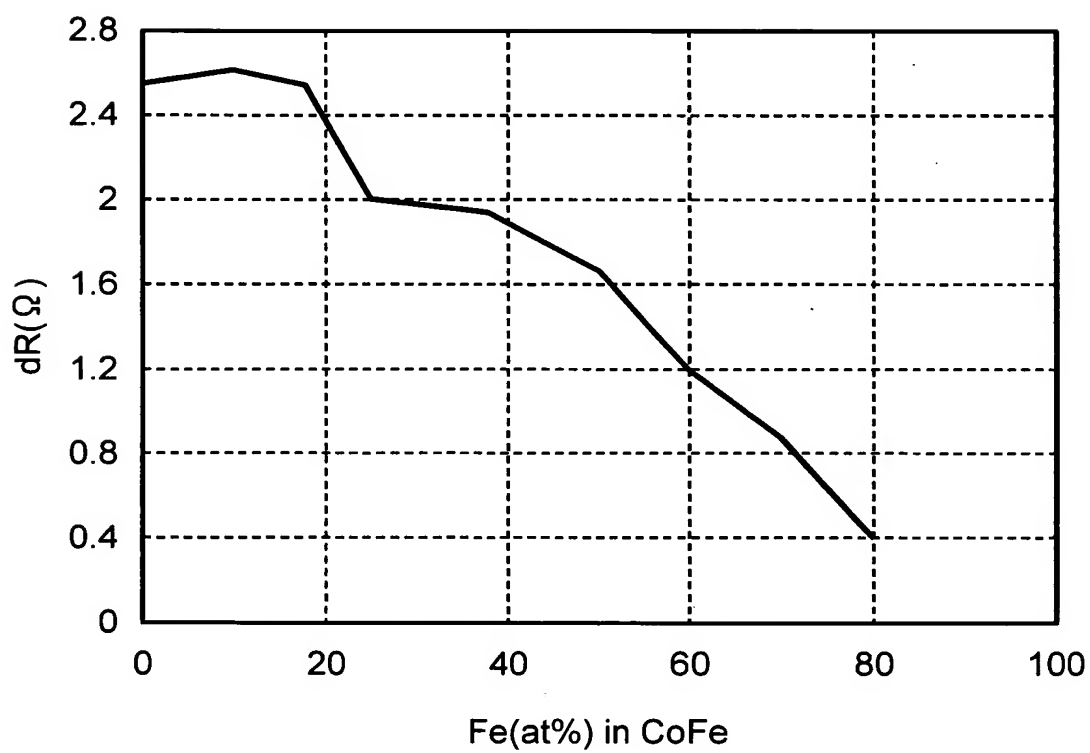
**FIG.13**

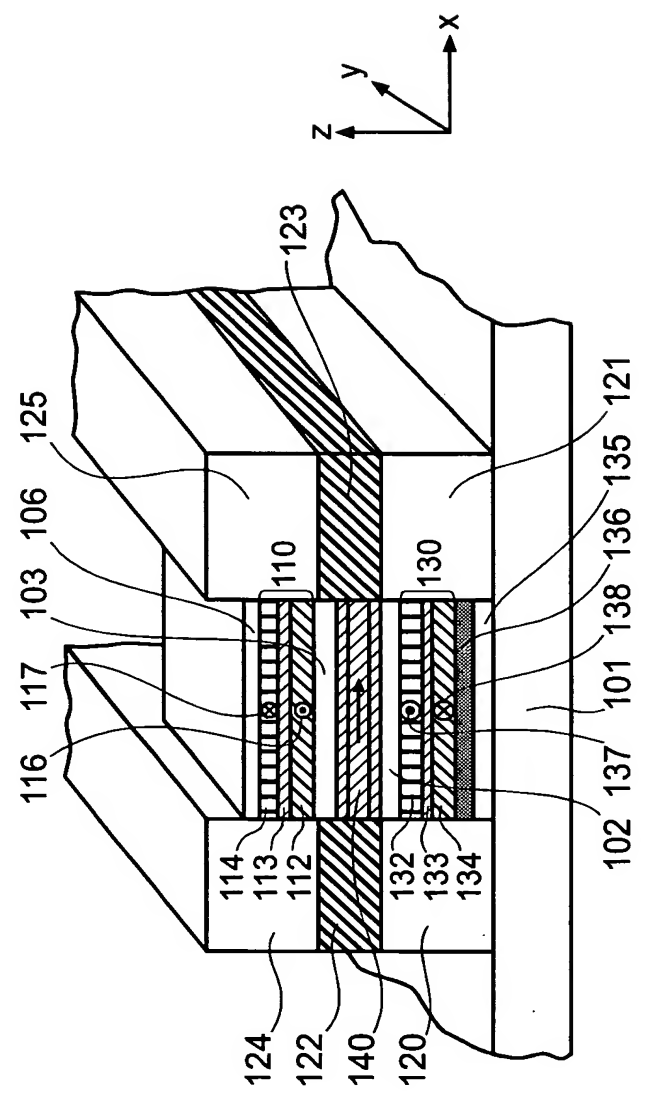
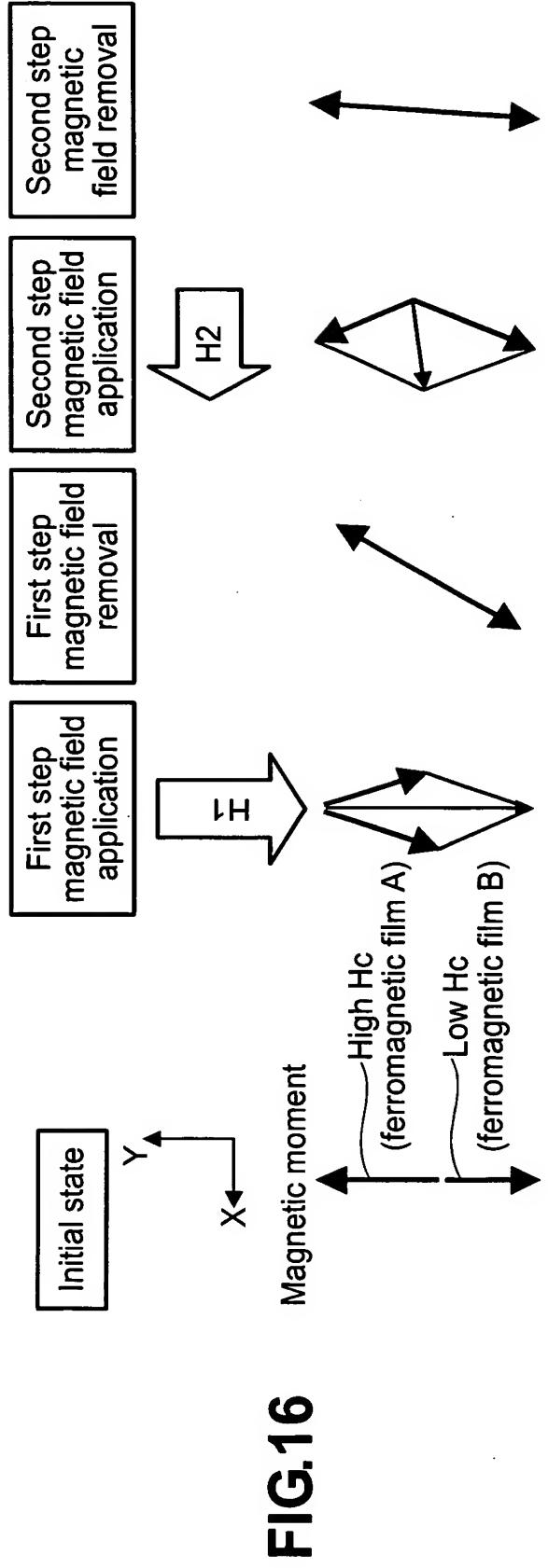


**FIG.14**

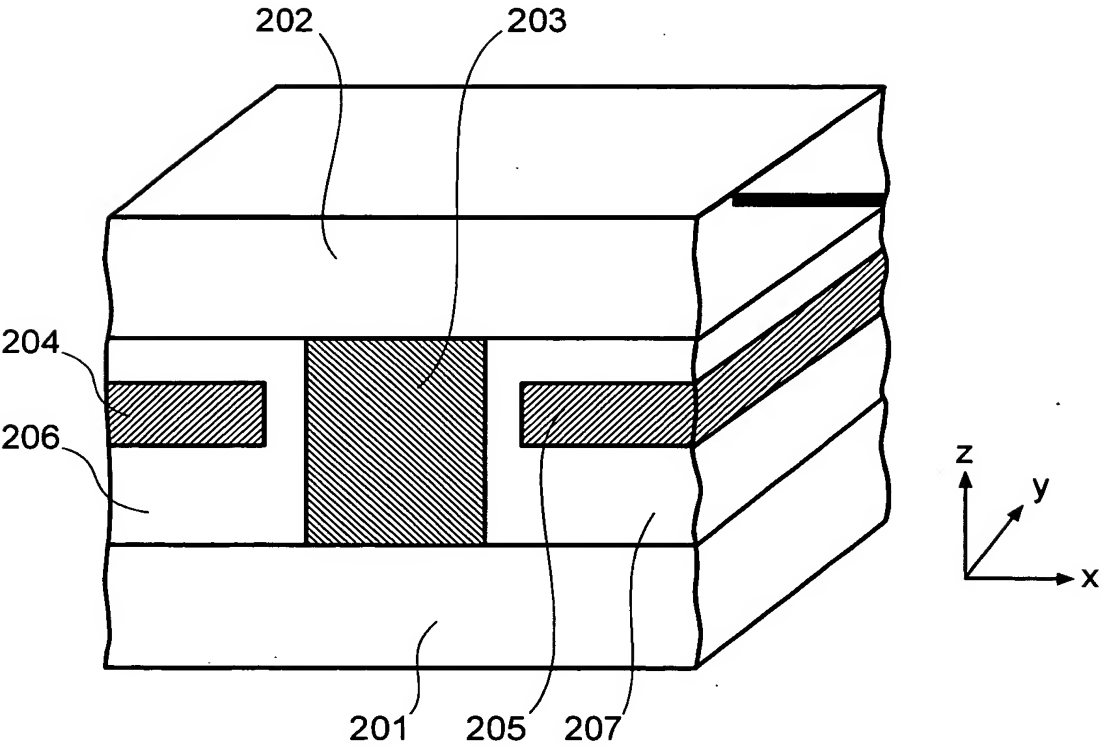


**FIG.15**



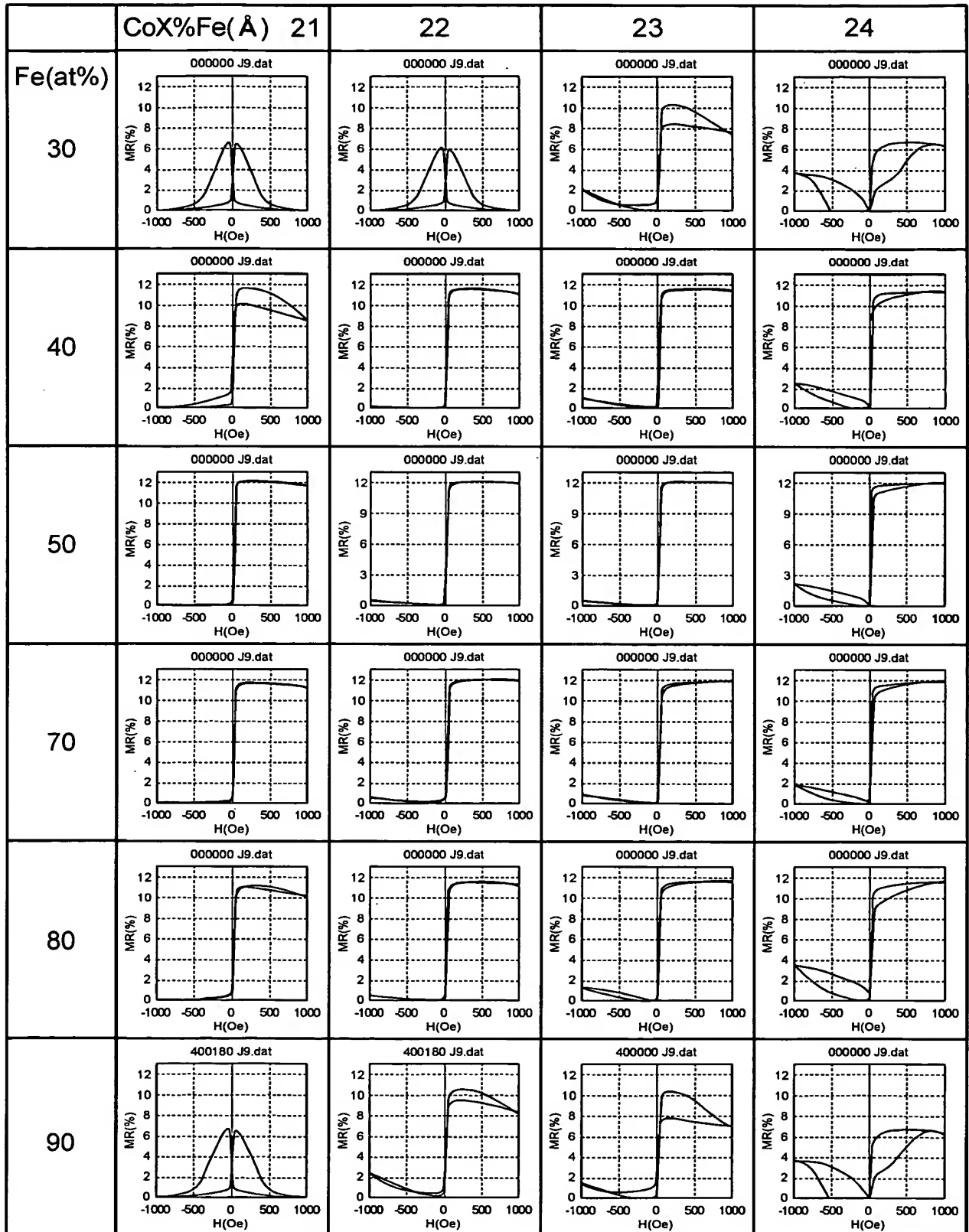


**FIG.18**





**FIG.19**



**FIG.20**

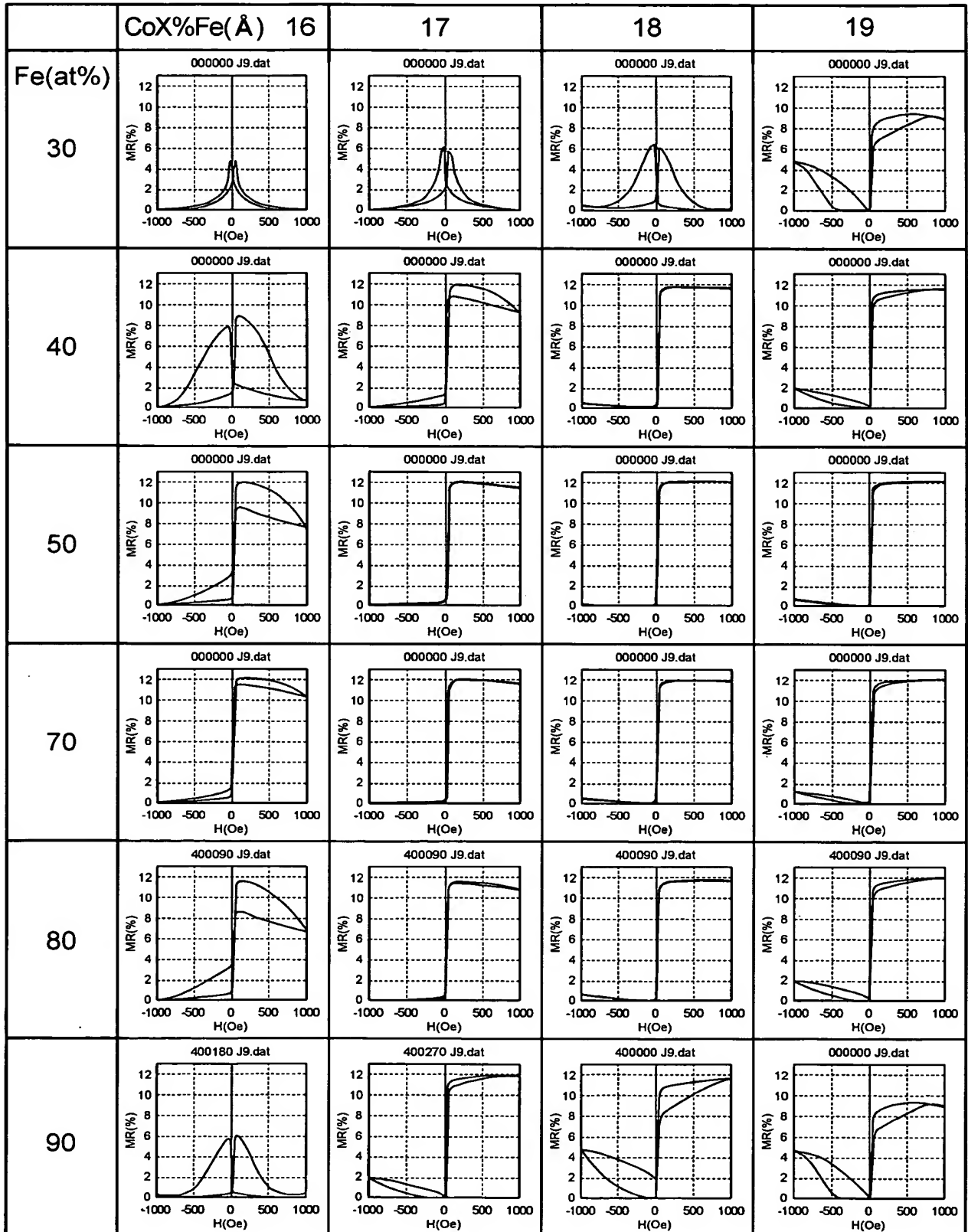


FIG.21

